UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,210	06/28/2004	Tetsuo Yamashita	360842011300	2598

25227 7590 07/25/2008

MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 400
MCLEAN, VA 22102

EXAMINER	
CHEN, WEN YING PATTY	
ART UNIT	PAPER NUMBER
2871	
MAIL DATE	DELIVERY MODE
07/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,210	YAMASHITA ET AL.	
	Examiner	Art Unit	
	WEN-YING PATTY CHEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 27, 2008 has been entered.

Claims 1, 3 and 17-20 remain pending in the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Chang et al. (US 6867833) further in view of Koike et al. (US 2002/0018159) further in view of Kim et al. (US 2002/0018159).

With respect to claims 1, 17 and 19: Nakagi discloses in Figure 4 a transflective liquid crystal display comprising a pair of substrates (element 1) disposed opposite to each other with a liquid crystal layer (element 7) held between the pair of substrates, a reflection means (element 2) using ambient light as a light source, a backlight source (not show, Paragraph 0003), and a color filter (element 13) having a transmissive region (element 5) and a reflective region (element 4) which are provided in each picture element of the color filter and which have colored layers comprising a single material, wherein the colored layers of the transmissive region and the reflective region have the same thickness.

Nakagi does not specifically disclose the use of a three-peak type LED backlight source, an aperture formed in the reflective region and that a color reproducibility of transmissive region chromaticity is 60% or more.

However, Kim discloses in Figure 4A the formation of aperture in the reflective region and Koike teaches in Paragraph 0056 to form colorless regions in the transmissive portion of a color filter layer so as to achieve a x value of the chromaticity of the red picture element of about 0.64 and a y value of the chromaticity of the green picture element of about 0.57 (as shown in Figure 4A). Further, Chang teaches in Column 7 lines 43-45 the use of a three-peak type LED backlight source in a transflective type liquid crystal display device, such that when the backlight source is used in addition to the color filter layer of the liquid crystal display device, a further increase in chromaticity is achieve (element 81, as shown in Fig. 5). As a result, the color reproducibility of transmissive region chromaticity would be 60% or more since the x value of the chromaticity of the red picture element would be much more than 0.64 and the y value of the chromaticity of the green picture element would be much more than 0.57.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transflective liquid crystal display device as taught by Nakagi wherein apertures are formed in the reflective region as taught by Kim, since Kim teaches that by forming apertures in the reflective region helps to adjust the characteristics of color and the brightness of the display device (Paragraph 0053) and wherein colorless regions are formed in the transmissive portion of a color filter layer as taught by Koike, since Koike teaches that an improvement in color reproducibility on the color filters can be achieved (Paragraph 0050) and further wherein the backlight source is a three-peak type LED backlight as taught by Chang, since Chang teaches that by using the three-peak type LED backlight together with the color filters enhances the color saturation at the backlight mode while maintaining the displaying effect of high reflectance (Column 7, lines 46-47 and Column 8, lines 5-18).

With respect to claims 3, 18 and 20: Nakagi discloses in Figures 1 and 2 a transflective liquid crystal display comprising a pair of substrates (element 1) disposed opposite to each other with a liquid crystal layer (element 7) held between the pair of substrates, a reflection means (element 2) using ambient light as a light source, a backlight source (not show, Paragraph 0003), and a color filter (element 3) having a transmissive region (element 5) and a reflective region (element 4) which are provided in each picture element of the color filter and which have colored layers comprising a single material.

Nakagi further discloses in Figure 1 that the color filter (element 3) includes the picture elements of at least one color in each of which the colored layers of the reflective region (element 4) and the transmissive region (element 5) have different thickness.

Nakagi does not specifically disclose the use of a three-peak type LED backlight source, an aperture formed in the reflective region and that a color reproducibility of transmissive region chromaticity is 60% or more.

However, Kim discloses in Figure 4A the formation of aperture in the reflective region and Koike teaches in Paragraph 0056 to form colorless regions in the transmissive portion of a color filter layer so as to achieve a x value of the chromaticity of the red picture element of about 0.64 and a y value of the chromaticity of the green picture element of about 0.57 (as shown in Figure 4A). Further, Chang teaches in Column 7 lines 43-45 the use of a three-peak type LED backlight source in a transflective type liquid crystal display device, such that when the backlight source is used in addition to the color filter layer of the liquid crystal display device, a further increase in chromaticity is achieve (element 81, as shown in Fig. 5). As a result, the color reproducibility of transmissive region chromaticity would be 60% or more since the x value of

the chromaticity of the red picture element would be much more than 0.64 and the y value of the chromaticity of the green picture element would be much more than 0.57.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transflective liquid crystal display device as taught by Nakagi wherein apertures are formed in the reflective region as taught by Kim, since Kim teaches that by forming apertures in the reflective region helps to adjust the characteristics of color and the brightness of the display device (Paragraph 0053) and wherein colorless regions are formed in the transmissive portion of a color filter layer as taught by Koike, since Koike teaches that an improvement in color reproducibility on the color filters can be achieved (Paragraph 0050) and further wherein the backlight source is a three-peak type LED backlight as taught by Chang, since Chang teaches that by using the three-peak type LED backlight together with the color filters enhances the color saturation at the backlight mode while maintaining the displaying effect of high reflectance (Column 7, lines 46-47 and Column 8, lines 5-18).

Claims 1, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 2002/0018159) in view of Chang et al. (US 6867833) further in view of Koike et al. (US 2002/0018159).

Kim discloses in Figures 2A and 2B a transflective liquid crystal display comprising a pair of substrates (element 201, which is the upper substrate and as discussed in Paragraphs 0012-0013, a lower substrate is also formed to oppose to the upper substrate) disposed opposite to each other with a liquid crystal layer (Paragraph 0012, discussed in the background) held between the pair of substrates, a reflection means (not shown but discussed in Paragraph 0015)

using ambient light as a light source, a backlight source (not shown, Paragraph 0037), and a color filter (element 202) having a transmissive region and a reflective region (as shown) which are provided in each picture element of the color filter and which have colored layers comprising a single material, wherein the colored layers of the transmissive region and the reflective region have the same thickness (as shown).

Kim is silent on the type of backlight being used, specifically that the backlight is a three-peak type LED backlight source, and that a color reproducibility of transmissive region chromaticity is 60% or more.

However, Koike teaches in Paragraph 0056 to form colorless regions in the transmissive portion of a color filter layer so as to achieve a x value of the chromaticity of the red picture element of about 0.64 and a y value of the chromaticity of the green picture element of about 0.57 (as shown in Figure 4A). Further, Chang teaches in Column 7 lines 43-45 the use of a three-peak type LED backlight source in a transflective type liquid crystal display device, such that when the backlight source is used in addition to the color filter layer of the liquid crystal display device, a further increase in chromaticity is achieved (element 81, as shown in Fig. 5). As a result, the color reproducibility of transmissive region chromaticity would be 60% or more since the x value of the chromaticity of the red picture element would be much more than 0.64 and the y value of the chromaticity of the green picture element would be much more than 0.57.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transflective liquid crystal display device as taught by Kim wherein colorless regions are formed in the transmissive portion of a color filter layer as taught by Koike, since Koike teaches that an improvement in color reproducibility on the color filters

can be achieved (Paragraph 0050) and further wherein the backlight source is a three-peak type LED backlight as taught by Chang, since Chang teaches that by using the three-peak type LED backlight together with the color filters enhances the color saturation at the backlight mode while maintaining the displaying effect of high reflectance (Column 7, lines 46-47 and Column 8, lines 5-18).

Response to Arguments

The affidavit under 37 CFR 1.132 filed on May 27, 2008 is insufficient to overcome the rejection of all claims based upon the rejections under **35 U.S.C. 103(a)** as set forth in the last Office action and re-presented above because:

The arguments regarding the unexpected result of being able to obtain a transflective liquid crystal display device having thinner color filter layers has structural limitations that are not commensurate with the scope of the claims. see MPEP 716.02(d). The statement that using a 3-peak type LED would result in a decrease of the thickness of the color filter layer of the reflective region is insufficient to support the structure of the liquid crystal display device as claimed, specifically that claim 1 claims the color filter having the same thickness throughout and claim 3 claims the color filter having different thicknesses with respect to the different display regions, but the difference is not further specified.

The claimed evidence of the claimed unexpected results has been weighed against evidence supporting prima facie case of obviousness and is believed to be insufficient to overcome the obviousness rejections. The claimed unexpected results coincide with the expected results of the prior arts as set forth in the previous office actions, specifically that

Chang discloses in Column 7 lines 41-67 and Column 8 lines 1-18 the use of three-peak type LED in a transflective type display device such that the resultant display device can achieve higher color saturation at the backlight mode while maintaining the display effect of high reflectance, thus a LCD having both high brightness and high color saturation can be obtained. Furthermore, Chang teaches in Column 8 lines 12-15 that the use of a three-peak type LED in a transflective type of liquid crystal display device improves the brightness and color reproducibility of the reflective region when in the backlight mode. Therefore, the claimed unexpected results of the present invention are not shown to have a significance equal to or greater than the expected results of the prior arts. see MPEP 716.02(c).

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEN-YING PATTY CHEN whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WEN-YING PATTY CHEN
Examiner
Art Unit 2871

/wpc/
7/16/08

/Andrew Schechter/
Primary Examiner, Art Unit 2871